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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/671,118	09/28/2000	Nobuaki Fujimura	500.39119 X00	8620

7590 05/10/2004

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EXAMINER

VILLECCO, JOHN M

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 05/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/671,118

Applicant(s)

FUJIMURA ET AL.

Examiner

John M. Villecco

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-8 and 10-12 is/are rejected.
- 7) ☒ Claim(s) 2, 4, 7 and 9 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Figures 2, 3A, 3B, 4A, 4B, 4C, and 4D should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 2, 4, 7, and 9 objected to because of the following informalities:
 - In claims 2, 4, 7, and 9, applicant repeatedly uses the phrase “said horizontal line”. However, in claim 1, there is no mention of a horizontal line. There is only a mention of “said line” in claim 1.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it

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pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 3 and 8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

6. Regarding claims 3 and 8, the applicant's claims make it sound as if a running average of both the first color component and the second color component are calculated independently and then the averages are used to interpolate a value of the first color component. It is clear from the specification that the interpolated first color component signal is obtained by calculating a value which is an average of the first and second color components. Generally, it appears that applicant is claiming that the interpolated value is based on an average of the first color component and a separate average of the second color component. A separate average of the first and second color components is never disclosed in the specification.

For examination purposes it will be assumed that the applicant means that the interpolated value of the first color component signal is an average of the first and second color components.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. **Claims 1-2, 5-7, and 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Hamilton, Jr. et al. (U.S. Patent No. 5,596,367).**

9. Regarding *claim 1*, Hamilton, Jr. discloses a method of interpolating images picked up using a color filter array (CFA) and an image sensor (12) (col. 2, lines 50-65). The captured image is stored in the buffer (18) and interpolated when the DSP instructs (col. 3, lines 19-40). Hamilton, Jr. discloses that after performing primary plane reconstruction which includes an interpolation process, additional interpolation is carried out in which the green pixels are replaced with an interpolated value. More specifically, as disclosed in column 7, line 48 to column 8, line 15, pixel G7 (interpreted as the designated pixel) is interpolated using the surrounding green pixel values. The green pixel values using the equation are found in the neighborhood of the designated pixel. Furthermore, the value of G7 is used in the interpolation of the pixel value G7.

10. As for *claim 2*, Hamilton discloses in column 8, lines 1-15, and more specifically in the equation and table found in the passage, that green pixels G2, G4, G10, and G12 are used in calculating the new green pixel value. These pixels inherently lie on horizontal lines adjacent to pixel G7.

11. With regard to *claim 5*, Hamilton, Jr. also discloses determining the green signal component at positions other than the green filter pixel locations by performing the green plane reconstruction. See column 6, lines 23-57.

12. *Claim 6* is considered substantively equivalent to claim 1. Please see the discussion of claim 1 above.

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13. **Claim 7** is considered substantively equivalent to claim 2. Please see the discussion of claim 2 above.

14. **Claim 10** is considered substantively equivalent to claim 5. Please see the discussion of claim 5 above.

15. **Claim 11** is considered an apparatus claim corresponding to claim 1. Please see the discussion of claim 1 above.

16. **Claim 12** is considered a computer program claim corresponding to claim 1. Please see the discussion of claim 1 above.

Allowable Subject Matter

17. Claims 4 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

18. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 4 and 9, the primary reason for indication of allowable subject matter is that the prior art fails to teach or reasonably suggest that the value of the interpolated color component signal is determined by one of the formulae $(G_{m-1, n-1} + G_{m,n})/2$, $(G_{m+1, n+1} + G_{m,n})/2$, $(G_{m-1, n+1} + G_{m,n})/2$, and $(G_{m+1, n-1} + G_{m,n})/2$.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

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(703) 872-9306 (For either formal or informal communications intended for entry. For informal or draft communications, please label **"PROPOSED"** or **"DRAFT"**)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington VA, Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John M. Villecco whose telephone number is (703) 305-1460.


The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John M. Villecco
April 24, 2004



WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
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